

side surfaces of said guard so that said spine engaging portions do not substantially increase the outer cross-sectional dimension of said guard near the distal end of said guard, said guard having a flat portion between at least some of said spine engaging portions for preventing over-penetration of said spine engaging portions into the spine.

108. The apparatus of claim 107, wherein said guard is a hollow tubular sleeve.

109. The apparatus of claim 107, wherein said guard has a circular cross section.

110. The apparatus of claim 107, wherein said passage has a circular cross section.

111. The apparatus of claim 107, wherein said guard has an increased outer dimension portion at its proximal end.

112. The apparatus of claim 107, wherein said distal end of said guard is contoured to the curvature of the adjacent vertebral bodies to permit an intimate fit between said guard and the adjacent vertebral bodies.

113. The apparatus of claim 107, wherein said guard has a footplate.

114. The apparatus of claim 107, further comprising means for cooperatively engaging to the proximal end of said guard an impaction end member for receiving an impaction force for driving said guard into the spine.

115. The apparatus of claim 107, further comprising a cap adapted to engage said proximal end of said guard.

116. The apparatus of claim 107, wherein said spine engaging portions are selected from at least one of teeth and pins.

117. The apparatus of claim 107, wherein said spine engaging portions are

adapted to penetrate the adjacent vertebral bodies.

118. The apparatus of claim 107, wherein at least one of said spine engaging portions has a tapered leading end to facilitate placement of at least one of said spine engaging portions into the spine.

119. The apparatus of claim 107, wherein at least one of said spine engaging portions has upper and lower surfaces that are parallel to each other.

120. The apparatus of claim 107, further comprising a removable inner guard.

121. The apparatus of claim 120, wherein said removable inner guard is a hollow tubular sleeve.

122. The apparatus of claim 120, wherein said removable inner guard is adapted to be inserted into said guard.

123. The apparatus of claim 122, wherein said inner guard has limiting means for limiting the travel of said inner guard within said guard when said inner guard is inserted into said guard.

124. The apparatus of claim 120, wherein said inner guard has a collar at one end larger than said passage of said guard.

125. The apparatus of claim 107, wherein said distal end further includes openings through said side surfaces of said guard.

126. The apparatus of claim 107, wherein said openings through said side surfaces of said guard are perpendicular to a longitudinal axis of said body.

127. The apparatus of claim 125, wherein said openings are slots through said side surfaces of said guard.

128. The apparatus of claim 127, wherein said slots are opposite one another.

129. The apparatus of claim 127, wherein said slots are parallel to one another.

130. The apparatus of claim 125, wherein said openings are two slots arranged parallel to one another and to a mid-longitudinal axis passing through said apparatus.

131. The apparatus of claim 107, further comprising a bone removal device for forming through said guard an implantation space across the disc space.

132. The apparatus of claim 107, further comprising an implant driver sized in part for passage through said passage of said guard for passing an implant through said guard and into an implantation space.

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133. The apparatus of claim 132, wherein said implant driver comprises an elongated shaft having means for engaging an implant at one end and means for manipulating said implant driver at the other end of said elongated shaft.

134. The apparatus of claim 133, further comprising means for limiting the depth of insertion of said implant driver into said guard.

135. The apparatus of claim 134, wherein said limiting means includes a portion of said implant driver cooperating with said guard to limit the depth of insertion of said implant driver into said guard.

136. The apparatus of claim 107, further comprising a spinal distractor sized for passage through said guard, said spinal distractor having a body and a disc penetrating member extending from said body and into the disc space between the two adjacent vertebral bodies for bearing against adjacent endplates of the two adjacent vertebral bodies.

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137. The apparatus of claim 136, wherein said disc penetrating member of said spinal distractor has a first portion for bearing against one of the endplates and a

second portion for bearing against a second of the endplates, said first and second portions being in a parallel relationship to each other.

138. The apparatus of claim 107, further comprising a tap for insertion through said guard for tapping the two adjacent vertebral bodies.

139. An apparatus for use in performing human spinal surgery for fusing vertebral bodies adjacent a disc space comprising:

a guard having a passage for providing guided access to the disc space and the adjacent vertebral bodies, said guard having a proximal end and an opposite distal end and sides therebetween, said guard having openings in said sides, said guard having spine engaging portions at said distal end of said guard for holding said guard to the spine, said spine engaging portions being substantially in line with said sides of said guard so that said spine engaging portions do not substantially increase the outer cross-sectional dimension of said guard near the distal end of said guard.

140. The apparatus of claim 139, wherein a mid-longitudinal axis passing through the center of at least one of said openings in said sides is perpendicular to a longitudinal axis of said guard.

141. The apparatus of claim 139, wherein said openings are at least two slots.

142. The apparatus of claim 141, wherein said slots are opposite one another.

143. The apparatus of claim 141, wherein said slots are parallel to one another.

144. The apparatus of claim 141, wherein said slots are parallel to one another and to a mid-longitudinal axis passing through said apparatus.

145. The apparatus of claim 141, wherein said openings in said sides divide at least a portion of said guard into an upper portion and a lower portion.

146. The apparatus of claim 145, wherein said upper portion and said lower portion are adapted to move apart from one another to facilitate the insertion of an implant.

147. The apparatus of claim 139, wherein said guard is a hollow tubular sleeve.

148. The apparatus of claim 139, wherein said guard has a circular cross section.

149. The apparatus of claim 139, wherein said passage has a circular cross section.

150. The apparatus of claim 139, wherein said guard has an increased outer dimension portion at its proximal end.

151. The apparatus of claim 139, wherein said distal end of said guard is contoured to the curvature of the adjacent vertebral bodies to permit an intimate fit between said guard and the adjacent vertebral bodies.

152. The apparatus of claim 139, wherein said guard has a footplate.

153. The apparatus of claim 139, further comprising means for cooperatively engaging to the proximal end of said guard an impaction end member for receiving an impaction force for driving said guard into the spine.

154. The apparatus of claim 139, further comprising a cap adapted to engage said proximal end of said guard.

155. The apparatus of claim 139, wherein said spine engaging portions are selected from at least one of teeth and pins.

156. The apparatus of claim 139, wherein said spine engaging portions are adapted to penetrate the adjacent vertebral bodies.

157. The apparatus of claim 139, wherein at least one of said spine engaging portions has a tapered leading end to facilitate placement of at least one of said spine engaging portions into the spine.

158. The apparatus of claim 139, wherein at least one of said spine engaging portions has upper and lower surfaces that are parallel to each other.

159. The apparatus of claim 139, further comprising a removable inner guard.

160. The apparatus of claim 159, wherein said removable inner guard is a hollow tubular sleeve.

161. The apparatus of claim 159, wherein said removable inner guard is adapted to be inserted into said guard.

162. The apparatus of claim 161, wherein said inner guard has limiting means for limiting the travel of said inner guard within said guard when said inner guard is inserted into said guard.

163. The apparatus of claim 159, wherein said inner guard has a collar at one end larger than said passage of said guard.

164. The apparatus of claim 139, further comprising a bone removal device for forming through said guard an implantation space across the disc space.

165. The apparatus of claim 139, further comprising an implant driver sized in part for passage through said passage of said guard for passing an implant through said guard and into an implantation space.

166. The apparatus of claim 165, wherein said implant driver comprises an elongated shaft having means for engaging an implant at one end and means for manipulating said implant driver at the other end of said elongated shaft.

167. The apparatus of claim 166, further comprising means for limiting the depth of insertion of said implant driver into said guard.

168. The apparatus of claim 167, wherein said limiting means includes a portion of said implant driver cooperating with said guard to limit the depth of insertion of said implant driver into said guard.

169. The apparatus of claim 139, further comprising a spinal distractor sized for passage through said guard, said spinal distractor having a body and a disc penetrating member extending from said body and into the disc space between the two adjacent vertebral bodies for bearing against adjacent endplates of the two adjacent vertebral bodies.

170. The apparatus of claim 169, wherein said disc penetrating member of said spinal distractor has a first portion for bearing against one of the endplates and a second portion for bearing against a second of the endplates, said first and second portions being in a parallel relationship to each other.

171. The apparatus of claim 139, further comprising a tap for insertion through said guard for tapping the two adjacent vertebral bodies.--

REMARKS

In the Office Action dated December 20, 2000, the Examiner objected to claim 1 based on an informality, and rejected claim 1 under 35 U.S.C. § 102(b) as being anticipated by MacKenzie '730. Applicant has cancelled claim 1 thereby rendering the objection and rejection moot.

Applicant has added new claims 107-171 to further define the present invention.